

KNOWLEDGE

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

FIGHTER MANAGEMENT 101

AVOIDING SOLDIER BURNOUT

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Leading on the Edge

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Paula Alliman, Editor
Blake Grantham, Graphic Design
Leslie Tisdale, Graphic Design

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MISSION PREPAR

While many Soldiers understand and already execute what I'm about to share, I offer these thoughts to help you enhance your existing practices and assist you in refining your thoughts and how you do business.

During the course of duty performance, there will be times you'll have a habitual opportunity to fight from or transport in Army aircraft. The great crews that transport our Soldiers are dedicated Warriors with an intense desire to achieve mission success. Our crews are mission focused and strive for "Mission Accomplishment." However, I suggest you'll want to establish mutually understood and agreed to criteria for risk acceptance prior to wheels rolling or breaking friction with the ground.

Let me explain. In aviation (or any other functional area), crew coordination doesn't begin when an aircrew straps on an aircraft and fires up the engines. Effective aircrew coordination begins with mission receipt, planning, and with the mission briefing. That's when everybody who has a stake in the successful accomplishment of the mission discusses what has to be done, when it has to be done, and why it has to be done. It is during the mission brief when all crewmembers determine what is expected of them



“One **MAJOR** way of **DEALING** with human performance or human error is to **IMPROVE** how our Soldiers **INTERFACE, WORK AND COMMUNICATE** with each other.”



IN ATION

during each phase of flight and during contingencies.

Here is where you enter the picture. Crewmembers aren't the only ones onboard or the only ones with a "stake" in mission success. As a member of the crew (or habitual passenger), you have an obligation to ensure there exists a clear understanding of "acceptable risk." The understanding of mission urgency and acceptable risk must be discussed. All personnel should clearly

address and define, prior to mission initiation, what "acceptable risks" exist (such as weather, enemy or other contingencies). It is in everyone's best interest to establish the exact criteria for mission continuation prior to encountering a threat (weather, IEDs, SAFARE, obstacles, etc.) before tension and stress surface.

The human side of accident equations is our single largest problem area, and the one area

where we lose the most Soldiers. Coincidentally, in this human factor is where we stand to make the greatest advances in accident reduction. One major way of dealing with human performance or human error is to improve how our Soldiers interface, work and communicate with each other. All too often, someone knew, or had that "gut" feeling, that something was wrong before an accident sequence began. Or even worse, the habitual passenger had "no idea" of what was happening and was merely "along for the ride."

Since all personnel on board have a stake in

mission accomplishment, there should be a conscious decision before mission initiation to continue the mission into an area where either the personnel or passengers are uncomfortable or unaware. The best communication and most effective coordination are absolutely essential if our Army aircrews, teams, squads, platoons, etc. are to complete their demanding missions safely and effectively. But that effective communication starts in the "crew brief" where calm prevails, not when the threat appears and stress enters the equation.

Effective operations dictate we function as a team. Just prior to an impending disaster is no time to decide what game plan we'll execute. «

Leading on the Edge!

W H Forrester

William H. Forrester
Brigadier General, USA
Commanding



FIGHTER
MANAG

Perhaps the greatest challenge for any commander during a combat deployment is developing a comprehensive resource management schedule that can support combat operations without burning out his or her personnel. The battlefield has no interruptions thanks to technological advancements, and whether it's day or night we must always be prepared to fight. However, these continuous

operations present a series of personnel management issues that must be addressed by every level of leadership.

The generally accepted rule is there are three standard shifts to accomplish 24-hour operations: day, night and quick reaction force. One company should be responsible for only one shift, but working out a schedule with limited manpower is a daunting task and one solution doesn't fit all situations. Each airframe or

vehicle has its own unique work environment, and commanders must tailor their rest program based on their aircraft's idiosyncrasies, not a generic fighter management plan developed at the MACOM level.

Due to the unusual demands placed on our Soldiers in terms of hours worked, stress, family separation and countless other problems, it's of paramount importance that commanders do all they can to establish a consistent and equitable work

101 ELEMENT

pattern when practical. A consistent work pattern offers security and mental stability for Soldiers, allowing them to organize their days and lives. We're all creatures of habit, and habit promotes safety and efficient production. This is a good thing.

A good commander will realize the issue of fighter management is at the heart of true leadership. One that neglects this subject or delegates it to someone else is shirking their responsibility. Anyone can mindlessly say, "Work until the regulation or SOP says you can't work anymore." But leaders must remember this fight is a marathon, not a sprint.

Think of it in terms of engine temperature. Imagine an aircraft's engine temperature consistently operating in the yellow or red range. When your Soldiers are pushed beyond the limit every day, just like that engine they'll fail. This failure will show in the form of safety breaches, operational errors and even suicides. Find the "green" and keep your Soldiers there with limited time in the yellow and red zones. Soldiers want to do the mission and they want to serve their country proudly; otherwise, they wouldn't have volunteered for duty. Give them a schedule that allows this to occur, not one that takes advantage of their patriotism.

I FEEL YOUR YOUR PAIN

LTC R.M. WILDZUNAS, SGT LY. PALACIO,
DR. PA. LEDUC, MS. L.S. MILAM, MS. TN. ROUSE
U.S. Army Aeromedical Research Laboratory
Fort Rucker, Ala.

It seems the words fatigue and Soldier are almost synonymous. These two words together can spell disaster for all Soldiers, but it's especially true in the aviation community.

Numerous investigations have focused on ways to alleviate and/or eliminate fatigue in aviation, and several studies involving stimulants have been conducted at the U.S. Army Aeromedical Research Laboratory using similar test schedules for simulator flights and mood evaluations. A recent dual-pilot study indicated, oddly enough, that some stimulants resulted in nearly equal performance as compared to previous single-pilot studies that examined twice the dosage of the same drugs. Since it's unlikely the lower doses of these stimulants produced the same behaviors to the same degree as the higher doses, psychosocial interaction—the interaction between the two pilots—provides the most plausible explanation for these results in dual-pilot crews.


To remove confounds of the drug and dosage, we isolated the psychosocial component of these studies by comparing mood and flight performance among the various placebo groups during comparable periods of sleep deprivation. Simulator flights focused on simple flight maneuvers. Regarding mood data, the Profile of Mood States and Visual Analog Scale were administered during similar times throughout the testing schedule. The POMS measured factors such as tension, depression, anger, vigor, fatigue and confusion. The VAS questionnaire asked how alert, anxious, energetic, confident, irritable, jittery, sleepy and talkative the test subjects were.

Analyses of these data found both

groups demonstrated equal overall flight performance. Mood reports indicated the dual-pilot group reported significantly lower levels of tension and depression but higher levels of anger, anxiety and jitteriness. In general, however, the dual-crew teams exhibited significant trends toward lower negative mood traits and higher positive mood traits. Additionally, as compared to their baseline mood states, they took longer to reach their maximum moodiness (whether positive or negative) during periods of extended wakefulness than single-pilot crews.

The pilots in our dual-pilot studies seemed more social, more agreeable and less likely to express discomfort or complain than single subjects. Interactions between them, their co-pilot and the research staff indicated no loss of temper or social withdrawal as had been seen in previous studies. The pilots' mood data suggests they internalized any negative feelings and still were motivated by their co-pilot to perform. In addition, they felt they had not only a co-pilot but also a confidant and someone who could relate to their situation, in this case sleep deprivation.

These findings generally indicate pilots flying as a crew tend to motivate each other to do well and feel better. The psychosocial environment seemingly has significant effects on pilot mood during periods of sleep deprivation. These data underscore the need to examine the resilience and vulnerability of team behavior as a fatigue countermeasure. By doing so, we'll be better able to prepare our Soldiers for situations where fatigue can cause mission problems while they keep alert and look out for one another in the combat zone. ◀



Set yourself apart from other leaders by carefully looking at everything you and your Soldiers are facing to determine the best crew endurance program for your team. Some obvious factors to evaluate include the environment, mission demands, equipment issues, personal affairs, support systems and culture. Remember, they're your team, not the enemy, and the circle of support begins with you. Anyone can be put in charge, but not everyone can handle the responsibility correctly.

A leader shows his concern (or lack thereof) for his Soldiers through his scheduling system. Morale will increase or decrease proportionate to the level of thought revealed in a work schedule. A poor schedule results in low morale, but a good schedule

AT ANY COST?

Risk management, safety and constant planning are a way of life for the military, but so are chaos, deadlines, demands and stress. Sometimes it seems as if there isn't enough time in the day to accomplish all our tasks, but the job always seems to get done. Benjamin Franklin wrote, "If you want to enjoy one of the greatest luxuries in life, the luxury of having

enough time, time to rest, time to think things through, time to get things done and know you have done them to the best of your ability, remember, there is only one way. Take enough time to think and plan things in the order of their importance." When leaders forget to follow basic principles like these, people get hurt or killed.

We were setting up a convoy operation from North Carolina to Virginia.

“Leaders have to **KNOW** their Soldiers, and this **PERSONAL KNOWLEDGE** is the key to an effective fighter management program. **TALK** to them and listen to **THEIR CONCERNS.**”

will create positive workers that produce positive results. Positive attitudes create environments conducive to successful operations that in turn equal mission success. This success can be achieved through a good fighter management program.

Commanders are human resource managers, so know your Soldiers. The U.S. Army Aeromedical Research Laboratory

has performed several studies regarding human biology and peak performance levels during the course of a day, including such variables as extreme heat and cold. The goal is to put our Soldiers in the fight when they're at their biological peak so they can perform at optimal levels. For aviators, this means ensuring they begin flight duties in the first third of their day, but no later

than the second third. The same concept holds true for ground troops as well. They deserve to be put in the fight at their best.

Leaders have to know their Soldiers, and this personal knowledge is the key to an effective fighter management program. Talk to them and listen to their concerns. A conscientious work schedule will reap immeasurable rewards in terms of support and unit morale. Make it happen because it's worth the effort —engaged leaders save lives.◀

Editor's note: The author's name was withheld by request. If you would like to publish a story anonymously in Knowledge, please contact the editor by e-mail at knowledge@crc.army.mil.



We were doing all the usual steps: planning for hours on end, reviewing courses of action, preparing maps, checking routes, scheduling sleep plans, briefing personnel, testing equipment and establishing emergency plans. We needed to complete the trip in less than two days and, according to the risk assessment, that goal was attainable.

The first leg of the trip was pretty uneventful except for a few vehicle breakdowns, but otherwise everything seemed to be going well. There was, however, one factor we overlooked along the way—fatigue.

All our vehicles needed fuel about halfway to our destination, and we'd planned for the refueling stop. Refueling the vehicles would take all

night, and our plan called for all drivers to get eight hours of sleep with no exceptions. This is where leadership really should've been on their toes, but as we all know it takes just one person to break the rules and create tragedy.

One of our 5-ton drivers didn't rest that night and fell asleep at the wheel on our way back to North Carolina the next day. The truck hit a car that was pulling onto the highway from a gas station.

What could our leadership have done to prevent this accident? We should've practiced Composite Risk Management continuously since circumstances can change every minute, hour

or day. Constantly reassess the situations and hazards around you to determine if the mission is worth the risk and apply new control measures when needed, then follow up with close supervision to ensure those risk decisions are carried out by everyone. Teamwork and communication are the keys to success, but everyone must realize they have a leadership role when it comes to risk management and getting the job done safely.◀

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Almost without fail, the human factor most frequently discussed in aviation operations is fatigue. This problem isn't unique to aviation alone, however; the physiological and psychological stressors associated with rotating work hours, cumulative operational fatigue and sleep loss affect every Soldier's performance. This article only briefly defines fatigue as part of rotating operations and sleep deprivation, but I challenge you to take stock in measures to mitigate the hazards created by too-tired Soldiers.

How is our sleep cycle established?

Circadian rhythms are natural, periodic oscillations in human function based on a 24-hour cycle. The circadian system functions as an internal clock that sets the time for sleep and wakefulness. We reset our internal clocks every day by getting up at the same time, reporting to work at a given repetitive time and, more importantly, by being exposed to sunlight at these times. Coupled with your own schedule, the sun is the key to maintaining circadian rhythm.

A desynchronized circadian system is similar to a symphony orchestra without

a conductor. Many factors can desynchronize the circadian system, including alterations in biologic function such as diet or sleep, maladapted environmental cues such as light, temperature, noise or vibration, and social influences like drugs, alcohol or stress. Circadian disharmony results in symptoms of malaise and fatigue as well as certain gastrointestinal problems. In time, sleep loss and workload pressure adversely interact with an individual's circadian rhythm to reduce their reaction time, decrease vigilance and distort cognitive thinking and perceptual function.

Need More

LTC NICK PIANTANIDA
Task Force Centaur Flight Surgeon
Fort Drum, N.Y.



reSleep?

What constitutes restorative sleep?

Sleep is like food and water in terms of a basic human requirement. Restorative sleep is defined by four cycles of stage 1 to 4 sleep and one cycle of REM, or dream state, sleep. Sleep efficiency varies between individuals and circumstances; however, as a general rule, a restorative sleep cycle can occur within five to six hours of continuous sleep.

Are you challenged with rotating shifts?

Constantly changing work shifts, such as quick reaction force or night duty, challenge the body to make circadian adjustments. Studies show it takes one day for each hour shifted into the work zone. Obviously we can function during this transition period, but we're less than efficient and proficient in our mental and physical performance. Such schedule adjustments maximize human error between 2330 and 0130 Zulu on your night-adjusted clock. When you're adjusted to your new schedule, however, avoid or minimize morning exposure to sunlight. Too much exposure will desynchronize your night-adjusted clock.

Is there any rest for the weary?

In the 1990s, NASA introduced a program called "Alertness Management." NASA scientists linked the long-haul requirement of space flight with the real-world challenges of sleep management and safety in operations. NASA scientists demonstrated that when individual sleep requirements

were not met daily, a sleep debt accumulated. They further determined this sleep debt could be paid off in small installments over time, which is the concept behind fighter management. Finally, they described the "NASA nap" as part of an optimal system of fatigue countermeasures. The NASA nap lasts exactly 40 minutes and takes full advantage of all four sleep stages, but be sure to avoid all naps—however short—within four hours of an approaching sleep cycle.

What are the best measures to stay awake?

Caffeine is the supplement of choice for most people, but timing is important. Never consume caffeine within four hours of an approaching sleep cycle because it will probably keep you awake. Conversely, carbohydrates and sugary foods induce sleep, but small meals or snacks rich in protein or fiber are proven stop-gap measures to fight off fatigue. Don't forget about exercise, which is your body's natural way of creating energy stores for later use. Maximize your health and fitness with 30- to 40-minute installments of exercise most days of the week and hydrate regularly

with water. Aggressively manage boredom with physical and mental activities on the job. Get up and walk around if you're feeling tired for an instant energy boost.

Operational mission requirements in Iraq and Afghanistan will press unit leaders and their Soldiers to manage workloads under recurrent cycles of fatigue. Fighter management and the countermeasures listed here are vital steps in safeguarding the goal to "finish strong" and "finish safe." Always lead on the edge, but get a good night's (or day's) sleep first! <<

A photograph showing the rear of a white car being towed by a large, olive-drab military vehicle. The car is on a flatbed trailer, and the military vehicle has various equipment and hoses visible on its side.

ASLEEP AT THE WHEEL

CW4 PATRICK BOARDMAN
U.S. Army Human Resources Command
Alexandria, Va.

Eight hours of sleep isn't a luxury we're all afforded. Sleep was hard to come by when I was stationed in Fulda, Germany, and it wasn't uncommon for me to go up to three days without it. Every fourth day I was comatose, but it was a routine I'd grown accustomed to. Unfortunately, sleep isn't one

the squadron. I didn't give my lack of rest a second thought. I just wanted to do a good job and impress my chain of command. After a briefing from the command sergeant major, I logged in and dispatched a vehicle from the motor pool so I could check on the guards. I ensured everything

fully awake, I dismounted and inspected my vehicle. There was no damage to it, but the POV's bumper was dented. I'd also managed to knock out its front lights and damage the grill. The owner of the POV, an aviator assigned to the unit, heard the sound of crashing metal and ran outside. I took a sound tongue lashing from the guy and later paid his \$500 insurance deductible.

I should've done things differently that night, but I didn't because I was too nervous to speak up and too eager to do a good job. I should've told my XO I wasn't in any condition to drive. I also should've spoken up while the command sergeant major was briefing me, but I didn't for the same reasons.

Soldiers today aren't any different than I was then. I was lucky because my accident just hurt me in the wallet. As leaders, we must be aware of what our Soldiers are doing and talk with them to gain some insight into their lives and what they're going through. Our intervention might keep them from making a mistake that could cost them their lives. ◀

“AS LEADERS, we must be AWARE of what our Soldiers are doing and TALK WITH THEM to gain some INSIGHT into their lives and what THEY'RE GOING THROUGH.”

of those basic needs your body can do without for long. I eventually found out you've got to pay your sleep debt.

The ink wasn't dry on my promotion orders to sergeant when the executive officer of my troop tasked me to relieve the sergeant of the guard at squadron headquarters. Although I was in day three of my sleepless sequence and still suffering from jetlag from my flight to Europe, I dismounted the aircraft I was working on and reported to

was in order, went back to the squadron, and the rest of the day passed without incident. About 3 a.m., I began another check of the guards, but by that time I was extremely tired and having trouble even keeping my eyes open.

Determined to finish the job, I climbed into the vehicle and began to back up. In my exhausted state, however, I failed to notice the privately owned vehicle that was parked behind me and backed right into it. Now

CRITICAL CONDITIONS

WILLIAM E. VAN TASSEL, Ph.D.
Manager, Driver Training Operations
American Automobile Association
Hearthrow, Fla.

Driving is especially risky during poor weather. Conditions such as rain, snow and ice reduce traction and, combined with driver errors, can create a recipe for injury or death. The fact that many of these accidents are preventable means we can identify the risks and do something about them. Here are some tips to keep safe on wintry roads:

Brakes

If your vehicle has an antilock braking system, test it before you need it and become familiar with its operation. Pick a rainy day and find a safe, open area where you can practice hitting your brakes and engaging the ABS. If you've never done it before, you might be surprised at the pedal vibration and the sounds you'll hear, but these events are normal.

The key is to keep firm pressure on the brake pedal and steer where you want to go. Your ABS brakes will keep you from sliding, allowing you to maneuver during an emergency. If you're not sure your vehicle has ABS, watch the dash lights when you start the engine. If you have ABS, an ABS light will illuminate briefly.

Tires

Tires are vital to your safety and are the key to how well your car steers, brakes and accelerates. Check to see if the

tread is deep enough to divert water from beneath the tires and enhance traction in snowy or icy conditions. A simple test is to stick a penny in the tread. If you can see the top of Lincoln's head, it's time for new tires. Also check the air pressure in each tire and make sure it's set to the manufacturer's recommended pressure. Tire inflation affects the speed at which your vehicle will hydroplane. Underinflated tires will increase your traction

at speeds under 50 mph, but above that speed they're more likely to hydroplane. Checking tire pressure at least once a month is one of the most important steps you can take to ensure your family's safety.

Seat belts

Occupant protection is the simplest, most effective tool for reducing injuries during a crash. For adults, this means using the vehicle's seat belts.



If your rear wheels begin to skid, take the following steps:





For children, this means using the appropriate child safety seat. Because inspections have found almost 90 percent of these seats are installed improperly, have your child's seat checked by a certified safety seat technician. Your child's school should be able to put you in touch with these specialists.

Controlled braking

Brake earlier than you would in good conditions and apply brake pedal pressure very smoothly. The vehicle's weight transfers toward the front as you brake, reducing the weight over the rear tires and increasing the possibility of skidding and oversteering. Don't

use your entire leg to depress the brake pedal; instead, set your heel on the floorboard and use your ankle as a pivot point, gently pushing with the ball of your foot. This stance will increase your control as you brake.

Distractions

Free yourself from distractions. When the weather turns bad, you need to concentrate even more on controlling your vehicle. Turn the radio down or off and turn off your cell phone's ringer. Take a deep breath, relax your hold on the steering wheel and focus on maintaining control and avoiding less careful drivers.

While winter weather poses additional risks to drivers, those risks don't have to result in accidents. Make sure you and every driver in your family practices using ABS until it's instinctive. It's far better to steer clear of trouble than to slide into it! ◀



• **Continue looking in the direction you want to travel. Your hands and feet will automatically do what's necessary to steer you in that direction.**

• **Gently ease up on the brakes and allow some of the vehicle's weight to transfer toward the rear where it's needed.**

• **Resist panic braking every time there's a problem—you'll only increase your chances of losing control of the vehicle.**

YOU'RE ONLY HUMAN

MAJ GINA E. ADAM, Ph.D.
U.S. Army Research Institute of
Environmental Medicine
Natick, Mass.

"The human is the weakest link." This statement often can be heard when people describe accidents of any sort. Given the complexity of the machinery and computer technology that make up today's aircraft, it's mind-bending to think humans would be the weakest link. Surely components will break and computers will fail more than an aircrew! On the other hand, could it be that machine parts and computer processes perform consistently, whereas humans are more easily affected by situations, environments and personal factors? This is a question that plagues the field of human factors.

The Army Aviation environment is ripe for human error due to such factors as operational tempo and the addition of advanced technology in the cockpit. For example, modern aircraft with multifunction displays often have increased capabilities over their traditional counterparts (e.g., map displays vs. kneeboards and paper maps). This increase in functionality might not only increase the amount of information available to aviators in the cockpit, but also the missions and tasks they are responsible for while in flight. The addition of functions and tasks requires pilots to spend more time managing the

aircraft as opposed to flying it.

Essentially, the more time pilots need to spend inside the cockpit managing the aircraft and flight systems, the less time and attention they have to direct toward keeping the aircraft in flight and away from obstacles. Increased heads-down time in the cockpit can significantly impair pilots' abilities to maintain situational awareness and properly coordinate their and their crew's actions. The combination of these factors might lead to increased aircraft accidents due to human error.

Within the aviation realm, it's

DID YOU KNOW?

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common to hear the statistic that 80 percent of accidents are due to human error. In fact, there are whole divisions of researchers working on these questions, trying to determine the incidence of human error, the best way to classify accidents and how to catalog human error in these accidents. The reason for this push is the need to learn

from past mishaps to improve risk management and reduce the potential for future accidents. To state the obvious, the Army is very concerned with risk management and the reduction of accidents. After all, you're reading this magazine, which is published by the U.S. Army Combat Readiness Center!

While the USACRC is the organization primarily responsible for accident investigations and analysis, the information gathered by their investigators is useful for many in the human factors field. Their Risk Management Information System Web site provides information regarding accident rates and statistics as well as details about accident causes and recommendations. Researchers use this information to answer some human factors questions.

There are several frameworks used by different organizations and researchers to evaluate

accidents and their causes. Before getting to the big questions regarding human error in Army Aviation accidents, let's review a few facts about accident data. We all know that aviation accidents can be called flight, flight-related or ground accidents depending on their circumstances and are classified according to their severity as Class A, B, C, D or E. Accident investigators determine the causes (environment, materiel or human error) of each accident to answer the question of what happened. Investigators also evaluate system inadequacies or root causes in each accident to determine why the accident happened. This additional classification allows for a more detailed understanding of hazards present in aviation operations.

The system inadequacies or root causes considered include support, standards, training and leader and individual failures. Of course, many



accidents have more than one causal factor and multiple root causes. For our current purposes, we're interested in examining human error more closely and also looking specifically at individual failures present in those human error accidents.

One important question in analyzing Army Aviation safety is, "How often is human error a cause of accidents?" However, acknowledging the presence of human error is merely the first step. A more complete understanding can be developed only when looking at the root causes of accidents. Many accidents have several root causes, all of which are important. Yet the individual failure category contains failures that are tied directly to the crewmembers and are most typical when thinking about human error. Some of these individual failures include overconfidence,

complacency, crew coordination lapses, crew issues and distraction due to high workload. While it's not possible in the space allotted here to define every possible individual failure, here are a few descriptions and examples.

Overconfidence and complacency

These two attitudes often are found in similar situations. They're both tied to an individual's confidence in himself, his crew, his aircraft or his ability to handle situations and can result in poor decisions while in flight. Pilot confidence is a very good thing; however, in Army Aviation, the saying "You can't have too much of a good thing" isn't always the case. A common example of overconfidence is continued flight in decreasing weather, which often leads to problems.


Crew coordination

Thankfully, much attention and

training have been geared toward improving crew coordination. The ability of crewmembers to distribute the workload while flying and accomplish their missions is dependent upon their ability to communicate effectively. Unfortunately, there are other less-known crew issues that can adversely affect crew coordination.

Crew issues

The makeup of an aircrew can be an important factor in crew coordination. How often have you heard of situations where a student pilot said he assumed the instructor pilot had the controls or knew what he was doing? What about times when there are experience or rank differences in the cockpit? Is it possible student pilots and junior officers are reluctant to question their co-pilots' actions, thus hampering crew coordination? In fact, accident investigators have found



“The **ARMY AVIATION** environment is **RIPE** for **HUMAN ERROR** due to such factors as **OPERATIONAL TEMPO** and the addition of **ADVANCED TECHNOLOGY** in the cockpit.”



that oftentimes a pilot's confidence in his IP or higher-ranking co-pilot can hinder communication. For example, a pilot might refrain from providing obstacle clearance details because he thinks the other pilot's experience means he doesn't need assistance. However, because there had been a communication breakdown, what the pilots in these situations didn't know was their experienced co-pilot was involved with other tasks and needed their input.

Distraction due to workload

Workload in aviation operations is often high, especially with the technological advancements of recent years. The susceptibility to distraction while flying is always a great risk and a major contributor to individual failures. The need to maintain attention outside the aircraft is in conflict with the time taken to manage flight

tasks with attention inside the aircraft. A brief review of accident findings shows that division of attention is extremely important. For example, in one accident the findings included statements that "both crewmembers were focused inside the cockpit" and "failure to effectively divide cockpit duties." Another accident with a completely different flight scenario was found to be the result of "attention diverted inside the cockpit" and "both of the crewmembers had focused their attention inside the aircraft." As you can see, these very similar findings indicate improper management of workload and cockpit attention is an important and common individual failure.

These individual failure descriptions are examples of how crewmember actions and attitudes can affect human error in Army Aviation accidents. You might be wondering how common

individual failures actually are identified in the accident database. As it turns out, when looking at any given sample of aviation accidents within the last 15 or so years, we see individual failures are identified in 84 to 92 percent of accidents classified as having a human error component.

This is not to say only individual failures are present. These numbers indicate at least one individual failure was identified by either the accident investigators or the author's research team; many of the accidents had a combination of failures, including support, standards, training and leader failures. Nonetheless, it's important to remain aware of the importance of workload management, crew coordination and aircrew attitudes such as complacency and overconfidence to increase Army Aviation safety. ◀



Highway Hijinks

U.S. ARMY COMBAT READINESS CENTER

The engineer platoon was almost mission complete after a successful deployment that included mechanical destruction of a three-story building. The platoon's last mission included discharging the barge transporting their equipment and conducting a convoy back to home station. Unfortunately, a series of human errors led to an Army Motor Vehicle accident that tarnished an otherwise successful deployment.

The accident sequence

The platoon began discharging equipment from the barge the day of the accident. Shortly thereafter, the platoon leader had drivers start conveying vehicles loaded with equipment from the port back to home station. The platoon leader's initial intent was to have two serials moved in the

morning and two in the afternoon; however, he never stated his intentions to the platoon.

Instead, five serials departed in the morning, with some consisting of a single vehicle. Four of those five serials required convoy clearances, special hauling permits and escort vehicles with rotating amber warning lights, none of which were available or

used. One of the drivers wasn't trained on the truck he was operating, nor did he have a military driver license.

The fifth serial—the accident vehicle—was an M916A3 truck that was pulling an M870A1 trailer loaded with a Link-Belt 330LX hydraulic excavator. This serial required but did not have a convoy clearance, special hauling

permit or the escort vehicles with rotating amber warning lights. The HYEX also wasn't on the unit's modified table of organization and equipment; it had been leased from a civilian vendor as a special requirement for the mission.

None of the unit's Soldiers were trained or licensed to operate the HYEX, but two of



them had previous experience with the excavator in civilian jobs. Unfortunately, the platoon leader didn't have those two Soldiers on the mission that day. The Soldiers that were on duty improperly loaded the HYEX on the trailer, leaving it more than 4 feet above the maximum safe height for the selected route. The platoon leader and driver failed to measure the vehicle's load height, although the driver did say he thought it was too high.

It's not hard to imagine what happened next. As the truck and trailer traveled on a five-lane highway, the HYEX struck a pedestrian walkway overpass. No one was hurt, but the impact damaged the HYEX, the trailer and two civilian vehicles, and traffic on the busy highway was backed up for about 14 hours. The overpass suffered such heavy damage the state demolished it.

Why the accident happened

The platoon leader briefed the company commander on the movement mission three weeks before the execution date. The company commander then gave the details to the platoon leader, who'd been in charge of the deployment mission since its beginning. This is where the series of errors began.

The company commander told the

battalion staff when the equipment was to arrive. The battalion staff considered the mission routine and provided no oversight. No operations order was published, and no one at the battalion level was backbriefed to ensure the company could perform the mission. More importantly, the company had no trained unit movement officer. Although the battalion leadership was aware of the requirement to have movement documents, they failed to assist or ensure the unit had the required convoy clearances or special hauling permits for tracked, overheight and overwidth vehicles.

The same errors occurred at the company level. An operations order wasn't published, and the unit failed to conduct backbriefs and rehearsals to ensure the platoon could perform the mission. The company commander also didn't know the platoon leader's concept of operations for the mission. The company commander was the approval authority for low-risk missions and was aware of the movement documents requirement, but he didn't ensure there was an approved risk assessment matrix for the mission or that the platoon leader had the necessary documents.

The errors continued through to the platoon level. The platoon leader briefed his platoon

“ NO OPERATIONS ORDER was published, and no one at the **BATTALION LEVEL** was backbriefed to ensure the company could perform the mission. **MORE IMPORTANTLY,** the company had no trained unit movement officer. **”**

members a week before the mission, but the brief wasn't clear. Platoon members weren't assigned to mission-specific positions such as discharge team members, convoy/serial commanders, drivers or truck commanders. The platoon leader also didn't have an approved risk assessment matrix for the mission. The platoon dispatched the four M916A3 trucks used during the mission from a sister unit's motor pool but failed to document the preventive maintenance checks and services on the trucks and trailers.

What can be done?

This accident involved leader and individual error through the battalion, company and platoon levels. Leaders understood the standards but failed to ensure their subordinates followed them. There

are several ways this accident could've been prevented, including:

- Operating vehicles in accordance with federal, state, local and military regulations, including having the appropriate convoy clearances, special hauling permits and escort vehicles.

- Only allowing trained and licensed Soldiers to operate equipment.

- Developing special training requirements to train and license operators on nonstandard and non-MTOE equipment.

- Properly planning, coordinating, briefing, backbriefing and rehearsing missions, assuming none are "routine."

- Paying special attention to oversized loads and validating their size before movement. Failing to do so could spoil an otherwise successful deployment. ◀

GOT TREAD?

Due to a manufacturer's shortfall, the U.S. Army Tank-Automotive Command recently issued Maintenance Advisory Message 07-010, which restricts the issue of new radial HMMWV tires for equipment in or heading to Southwest Asia. Other units will have their requests for HMMWV radial tires placed on backorder until more tires become available. So, where does this leave units outside SWA? They might be able to use the older bias-ply tire if their vehicle is an M966, M998, M998A1, M996, M1025, M1026, M1037 or M1038. See the MAM for details.

Here are a couple of precautions to keep in mind. First, never mix radial and bias tires on the same vehicle. Second, never use radial

tires on the eight-bolt bias rims. You can, however, use either radial or bias tires on the 12-bolt radial tire rim. Keep in mind that if you use a bias tire on a radial rim, you'll also need to use a bias run-flat and spacer kit as listed in the MAM. Third, never operate vehicles with tires past their

» FYI

- Never use radial tires on bias rims. Eight-bolt rims are to be used with bias tires only. Twelve-bolt rims can be used with either bias or radial tires.
- When using a bias tire on a radial rim, use a bias run-flat and spacer kit as listed in MAM 07-010.
- When changing from radial to bias tires, all four tires and run-flats must be changed at the same time.
- Do not mix radial and bias tires on the same vehicle.
- Replace tires when they reach their wear limit.
- Use only approved bias or radial tires in accordance with MAM 05-021.
- Remember to check the tires on your trailers, too.

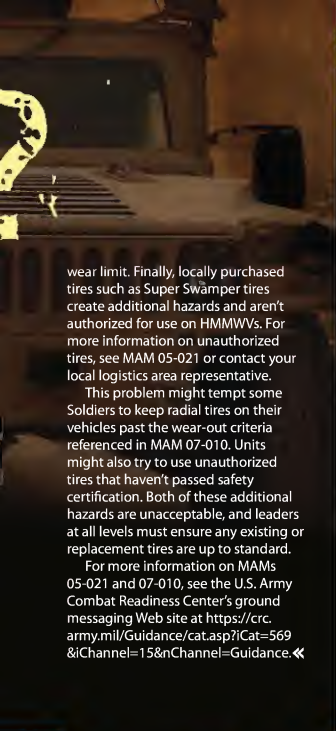


GOOD INFLATION

MARTY CHARLIER
Senior Technical Specialist
for Utility Helicopters
Huntsville, Ala.

An article in the March 2004 *Flightfax* recounted an accident involving two Soldiers performing routine tire servicing on the main gear of a UH-60. The Soldiers didn't have the proper equipment to inflate the tire and inadvertently overinflated it with nitrogen to the point of failure. The

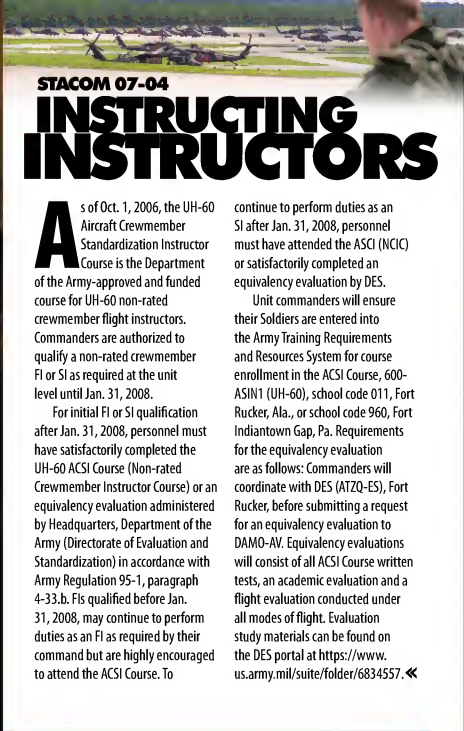




wear limit. Finally, locally purchased tires such as Super Swamper tires create additional hazards and aren't authorized for use on HMMWVs. For more information on unauthorized tires, see MAM 05-021 or contact your local logistics area representative.

This problem might tempt some Soldiers to keep radial tires on their vehicles past the wear-out criteria referenced in MAM 07-010. Units might also try to use unauthorized tires that haven't passed safety certification. Both of these additional hazards are unacceptable, and leaders at all levels must ensure any existing or replacement tires are up to standard.

For more information on MAMs 05-021 and 07-010, see the U.S. Army Combat Readiness Center's ground messaging Web site at <https://csrc.army.mil/Guidance/cat.asp?Cat=569&iChannel=15&nChannel=Guidance>. <<



STACOM 07-04

INSTRUCTING INSTRUCTORS

As of Oct. 1, 2006, the UH-60 Aircraft Crewmember Standardization Instructor Course is the Department of the Army-approved and funded course for UH-60 non-rated crewmember flight instructors. Commanders are authorized to qualify a non-rated crewmember FI or SI as required at the unit level until Jan. 31, 2008.

For initial FI or SI qualification after Jan. 31, 2008, personnel must have satisfactorily completed the UH-60 ACSI Course (Non-rated Crewmember Instructor Course) or an equivalency evaluation administered by Headquarters, Department of the Army (Directorate of Evaluation and Standardization) in accordance with Army Regulation 95-1, paragraph 4-33.b. FIs qualified before Jan. 31, 2008, may continue to perform duties as an FI as required by their command but are highly encouraged to attend the ACSI Course. To

continue to perform duties as an SI after Jan. 31, 2008, personnel must have attended the ACSI (NCIC) or satisfactorily completed an equivalency evaluation by DES.

Unit commanders will ensure their Soldiers are entered into the Army Training Requirements and Resources System for course enrollment in the ACSI Course, 600-ASIN1 (UH-60), school code 011, Fort Rucker, Ala., or school code 960, Fort Indiantown Gap, Pa. Requirements for the equivalency evaluation are as follows: Commanders will coordinate with DES (ATZQ-ES), Fort Rucker, before submitting a request for an equivalency evaluation to DAMO-AV. Equivalency evaluations will consist of all ACSI Course written tests, an academic evaluation and a flight evaluation conducted under all modes of flight. Evaluation study materials can be found on the DES portal at <https://www.us.army.mil/suite/folder/6834557>. <<

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explosion shot large chunks of the magnesium wheel in all directions. One Soldier was hit in the lower torso and killed instantly, while the other Soldier's arms were severed above the elbow. The power released during the explosion was strong enough to lift the aircraft off the ground and cause significant

damage to the airframe.

Fortunately, industry has developed a fix for this problem so the same accident doesn't happen again. The UH-60 program manager recently approved a new tire inflation cage for UH-60 and AH-64 aircraft that provides two additional levels of protection for the Soldier.

First, it's portable and fits over the main or tail wheels and can be used with the wheels installed on the aircraft. Second, the device features an inline relief valve to prevent overinflation if other safety devices fail and a cage to contain the debris from an explosion or other catastrophic tire or wheel failure.

The cage can be requisitioned through normal supply channels using NSN 4920-01-545-0763 and part number SK2000TC-6. For more information on this product, contact Marty Charlier, Senior Technical Specialist for Utility Helicopters, at (256) 955-9735 or by e-mail at marty.charlier@us.army.mil. <<

foresight for eyesight

FRANK MCCLANAHAN
Safety and Occupational Health Manager
U.S. Army Combat Readiness Center

It's easy to take for granted the things in our lives we depend on every day and yet give very little thought. Imagine for a moment you could never see the face of your spouse or children again. You could never watch a snowfall in the winter or see the orange sun go down over the ocean during a warm summer evening. What would it be like if you couldn't watch your favorite sports team or NASCAR driver, see your favorite film stars or television programs, or read the morning newspaper or a best-selling novel by your favorite author? Most of us don't give much thought to the significance of such a loss, yet catastrophic eye injuries occur in the workplace every day.

According to the U.S. Department of Labor's Occupational Safety and Health Administration Web site, thousands of individuals are blinded each year by work-related eye injuries. These injuries result in more than \$300 million annually in lost production, medical expenses and worker's compensation. The National Institute for Occupational Safety and Health points out on the Centers for Disease Control Web site that most workplace

eye injuries are caused by small pieces of wood, metal or cement striking or abrading the eye. Objects that penetrate the eyes can result in permanent blindness.

Federal law mandates employers provide their workers a safe and healthful work environment. As such, employers must conduct workplace assessments to identify hazards where eye and face protection are needed. OSHA describes the common types of workplace hazards as heat, chemicals, dust and optical radiation.

Once the employer identifies any of these hazards during an assessment, consideration must be given to the risk of exposure, the potential for multiple exposures

DID YOU KNOW?

According to the American National Standards Institute, workplace eye injuries are a leading cause of eye trauma, vision loss and blindness. An estimated 2,000 eye injuries occur in the workplace every day, but according to the American Academy of Ophthalmology, nearly 90 percent of all eye injuries could've been prevented by using the right kind of protective eyewear.



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PROTECTING YOUR EYES

There really isn't much to be said about protecting your eyes other than you'd be foolish not to do so at all times while on the job. Eye protection devices have been used in the construction industry since 1910. While the original eye protection devices were somewhat limited, today there are styles for every type of exposure. Many tasks require that workers wear eye protection, including:

- Chipping, sledging and hammering metal, stone or concrete
- Use of manual, pneumatic and power impact tools
- Caulking, brushing and grinding
- Drilling, scaling and scraping
- Babbitting, soldering and casting hot metals
- Handling acids, caustics and creosoted materials
- Gas welding, cutting and brazing
- Drilling overhead
- Working in excessively dusty environments
- Electric arc welding and cutting and other operations that expose the eyes to flying particles, dust, hot liquids, molten substances, gases, fumes and liquids

Some people just don't like to wear safety glasses and goggles. One complaint is goggles tend to fog up. Fogging happens when sweat vaporizes and coats the inside of the lens. If you have this problem with goggles and glasses, wear a handkerchief or sweatband around your forehead to keep perspiration out.

Another complaint is eye protection devices are uncomfortable, but usually this is because they don't fit properly. Make sure you have the device properly adjusted for the correct fit or simply get another that fits better. You can see a lot better out of a properly fitted eye protection device than you can out of a glass eye.

Like all safety devices, eye protection is there for you and your eyes. Be smart and use eye protection at all times when on the job. What have you got to lose? Your sight?

For more information go to <https://arc.army.mil>.

and determining the highest level of required protection. The first course of action is to engineer out the identified hazard, including using shields and guards if possible.

If this solution isn't possible, the employer must provide the appropriate eye or face protection and employee training.

Employees who wear prescription eyewear also must wear eye protection. Eye protection that fits comfortably over prescription eyewear is available, as are safety goggles and spectacles incorporating

prescription lenses. Eye and face protection issued to employees must comply with the American National Standards Institute ANSI Z-87.1 1989 standard if purchased after July 5, 1994, or ANSI Z87.1-1968 if purchased before July 5, 1994.

OSHA Standard 1910.132(f) requires that employers train employees to know when protection is necessary, along with what type is needed and how it should be worn. Employees also must learn proper care, useful life and proper disposal of their protective equipment. That training, which should be presented in a manner easily understood by employees, must be provided by a knowledgeable



SEEING

CW2 CRAIG LAURENSON
Fort Hood, Texas

FYI



HAZARD ASSESSMENT

Hazard Type	Hazard Examples	Common Related Tasks
Impact	Flying objects such as large chips, fragments, particles, sand and dirt	Chipping, grinding, machining, masonry, woodworking, sawing, drilling, chiseling, powered fastening, riveting and sanding
Heat	Anything emitting extreme heat	Furnace operations, pouring, casting, hot dipping and welding
Chemicals	Splash, fumes, vapors and irritating mists	Acid and chemical handling, degreasing, plating and working with blood
Dust	Harmful dust	Woodworking, buffing and general dusty conditions
Optical Radiation	Radiant energy, glare and intense light	Welding, torch cutting, brazing, soldering and laser work



person. Employees who receive training must demonstrate how to properly use their protective equipment before working in an area where it's required. Training must be certified for each employee and include

documentation containing the employee's training date and certification subject.

While the consequences described above are severe and not all eye injuries result in total blindness, eyesight is

a precious gift that must be protected. Employers must make every effort to protect their workers and ensure appropriate information and necessary resources are available to eliminate workplace eye injuries. <

IS BELIEVING

While working in the motor pool one day at Fort Hood, Texas, I heard people yelling and running toward the gate. The buzz of activity got me curious, so I went to see what was happening. I couldn't tell what was going on when I got to the gate, but I later found out a sergeant in my company had burned his eyes. Apparently he'd been working on a HUMV battery when it exploded, sending battery acid into his face. After this incident, we were all briefed on wearing our personal protective equipment.

When working with equipment or volatile substances, be sure to:

- Always wear eye protection.
- Wear rubber gloves to protect your hands.
- If you need corrective lenses and handle batteries often, wear prescription glasses, not contacts.
- Do not smoke, have open flames or make sparks around a battery. Batteries emit an explosive gas.
- Make sure the vent holes in the vent caps are open to prevent a dangerous buildup of gasses.

As it turned out, the sergeant was all right and his eyes weren't damaged permanently. However, he did say they burned like nothing he had ever felt before. I took this in but figured it could never happen to me. Boy was I wrong!

Six years later, while stationed at Fort Drum, N.Y., I was working on my car battery. Although I always wear PPE to protect my eyes and ears when I mow the lawn or work with power tools, it never crossed my mind to wear it while working on my car. No loud noises, no big deal. I'd forgotten about the incident at Fort Hood by then.

As I stood in my driveway and tried to pry off the battery cap, it suddenly broke free. It all happened so quickly I didn't have time to turn my head. I had a *de'ja vu* moment as I felt my eyes burning like you wouldn't believe! Yep, I'd gotten battery acid in my eye just like that sergeant I'd forgotten about a few years before.

I couldn't see, so I felt and bumped my way through the garage and stumbled into the house. My wife told me to flush my eye for 15 to 20 minutes, and that was bad enough. We went to the doctor's office after that, where they put dye in my eye and used a black light to check for injuries. I was lucky—my eye wasn't scratched. The doctor said flushing it right away had been a good thing and probably helped prevent a more serious injury.

I couldn't believe this happened to me. When it did, though, I immediately thought about that incident at Fort Hood. I now make it a point to wear eye protection whenever I work on a vehicle battery. The funny part of this story is I was getting my car ready for the drive to Fort Rucker, Ala., to take the Aviation Safety Officer Course!

When someone tells you to wear your PPE, listen up and do it. They're not doing it to merely hear themselves talk. They're probably speaking from experience and just trying to protect you. <

Take a

WILSON & LEO
Illustration by Emergency Services
Art from: N.Y.

Are you one of those hardy souls who enjoy the great outdoors during winter? Sure, the Army trained you to work and fight in the cold, but what about when you're off duty, hiking or backpacking with friends or family? Do you remember to plan for the cold weather hazards? And what about the people hiking or camping with you? How well trained are they to survive? To ensure your visit to the outdoors ends happily, here are some tips derived from the New York State Department of Environmental Conservation:

- Carry gear suitable for changing weather conditions, including rain and snow. If you're planning an overnight trip, take a tent, space blanket or good tarp for shelter.

Also bring a stove, good rain gear, wool pants, a hat, a sweater and a change of dry clothes for the cold. Always wear wool or appropriate synthetics, as cotton does not insulate when wet; it actually draws heat away from the body. Also, every group of day hikers should carry at least one sleeping bag in case of an emergency. Should someone be unable to get to shelter, the bag can help keep them warm.

- Bring plenty of high-energy foods such as cereal, granola bars, dried fruit and nuts to snack on while traveling. Drink lots of fluids to prevent dehydration.

- Camp early and set up well before dark or at the first

sign of stormy weather. Keep your group together, especially toward the end of the day.

- Don't take unnecessary chances or push too hard. Abandon the trip if anyone becomes sick or bad weather sets in. Know your group's limitations and make modifications as necessary. The mountain, lake, river or trail will still be there for the next trip.

- Plan your trip well in advance and leave a trail plan with someone at home and, as a backup, a friend or co-worker. Don't overestimate your stamina and choose a reasonable daily destination. Stay in good physical shape and get plenty of rest. If you're hiking a trail, sign in at all trailhead registers on your route.

- Be familiar with your area of travel. Obtain up-to-date maps and take them with you. Check your maps often and stay oriented.

- Avoid traveling alone. As a minimum, travel in a group of three or more. If a hiker is injured, a member of the group can stay with the victim while the others seek help.



Visit the New York State Department of Environmental Conservation's Web site at <http://www.dec.state.ny.us> for more outdoor safety tips. Additional information on hypothermia and other cold weather injuries can be found on the U.S. Army Center for Health Promotion and Preventive Medicine Web site at <http://chppm-www.apgea.army.mil/coldinjury>.

Hike!



SURVIVING HYPOTHERMIA

• If you think you're lost, STOP AND SIT DOWN. Try to think calmly, refer to your map and compass and check for landmarks. Don't continue traveling unless you know where you are. The other members of your group also should stay put; remember, there's a leader in every team, and sometimes that leader has to be you.

• If you're indeed lost, STAY IN ONE PLACE. Put out

signals in threes: three yells, whistle blasts, gunshots or columns of smoke. Any signal of three is a standard distress signal. Make your area and yourself highly visible. Also ensure children know what to do if they get lost.

• Each person should carry a survival kit that includes the following items as a minimum: map, compass, signal mirror, matches, whistle, enough change for a pay phone, flashlight, rope, space blanket, raingear, extra wool sweater and snacks. Carry a cell phone or, better yet, look into renting a satellite phone so you can call for help if needed.

Following these steps can lead to a fun, safe and successful winter outing. Use Composite Risk Management to assess the hazards and develop countermeasures to reduce or eliminate them. And when you're warm and cozy back home, take a few minutes to remember the great time you had thanks to your CRM skill! <<

Hypothermia can pose a serious danger should you or others be caught without shelter during cold weather. This condition happens when the body's inner core begins to cool and leads to the victim's progressive mental and physical collapse. Hypothermia can occur at temperatures above freezing and is accelerated by dampness, wind and exhaustion.

Because the signs of hypothermia are progressive, victims might not recognize the beginning stages. Here are some of the more noticeable early warning signs:

- **Uncontrollable shivering**
- **Reduced muscle coordination leading to difficulty walking or fumbling when trying to handle things**
- **Reduced mental awareness leading to incoherent speech, apparent drowsiness and irrational or uncooperative behavior**

Treat hypothermia by immediately warming the victim. If possible, protect the victim from the wind and rain and remove any wet clothing, replacing it with dry clothes. Also try to get the victim to a source of warmth such as a campfire. If a campfire or heater isn't available, warm the victim by placing them inside a sleeping bag where they can have skin-to-skin contact with a healthy person. Give the victim hot drinks such as soup or sugared water, but avoid caffeine and alcohol. Keep the victim awake and conscious and seek medical help immediately.





AVIATION

AH-64



CLASS B

D Model

While conducting a ground run, the aircraft experienced an engine No. 2 overspeed. Engine No. 2 was started, but during the start sequence the rotor brake disengaged. The No. 2 power lever was pulled to the off position, but the engine continued to engage. The crew attempted to turn the engine off using the ENG CHOP collar, but the engine continued to

overspeed while simultaneously beginning to roll and pitch left.

CLASS C

The 30 mm gun came out of the stow position during landing and struck the ground, causing the turret assembly to separate from the aircraft.

MH-47



CLASS C

E Model

The aircraft struck a bird during a night vision goggle training flight, resulting in damage to the engine driveshaft and fairing.

TH-67



CLASS C

A Model

The instructor pilot initiated a power recovery during termination of a standard autorotation. The aircraft yawed approximately 90 to 100 degrees to the right and landed hard on the tarmac, resulting in damage to the forward underbelly and fuselage at the forward bulkhead.

**DO YOU INITIATE
AUTOROTATION POWER
RECOVERIES IN ACCORDANCE
WITH AIRCREW TRAINING
MANUAL OR FLIGHT TRAINING
GUIDE STANDARDS?**

UH-60



CLASS C

A Model

■ The aircraft was taxiing to parking when the main rotor blade contacted the tail rotor of a parked aircraft. Both aircraft suffered damage.

DO YOU USE A GROUND GUIDE TO ENSURE AIRCRAFT CLEARANCE IN HAZARDOUS AREAS?

CLASS C

L Model

■ While attempting to open the aircraft's right-side cargo door, a passenger inadvertently pulled the emergency window release. The crew chief was able to secure one of the cabin windows, but the other window was pulled into the main rotor system by rotor downwash and vortices, causing damage to the main rotor blades and cabin window.

DO YOU CONDUCT A THOROUGH PASSENGER BRIEF IN THE AIRCRAFT OPERATOR'S MANUAL AND CHECKLIST?

■ While performing a visual meteorological conditions approach to a dusty landing zone, all crewmembers lost visual contact with the ground and failed to notify the pilot in command, who was on the flight controls. On final termination of the approach, the aircraft drifted forward and struck a HESCO barrier.

RC-12



CLASS C

N Model

■ The crew struck a small deer just before rotation on a touch-and-go landing. The takeoff was aborted, and the runway was cleared without further incident.

UAS

RQ-7B



CLASS C

■ The Unmanned Aircraft System initiated uncontrolled flight during operator training. The recovery chute was deployed, but it separated from the airframe. The UAS landed hard and a postcrash fire ensued.

■ The aerial vehicle operator experienced rpm decline and subsequent engine failure during flight. The recovery chute was deployed before ground impact.

RQ-11



CLASS C

■ The aircraft voltage fluctuated between 19 to 22 vdc during flight. Once voltage dropped below 19 vdc, the aircraft was directed to return home. The aircraft was within 1,400 meters of home station when the voltage dropped to 16 vdc, causing the operator to lose control.

■ The aircraft completed the first two legs of a reconnaissance mission when wind and rain quickly developed. The operator noticed the remote video terminal was getting poor reception and tried to maneuver the aircraft back to the rally point. Contact with the aircraft was lost momentarily, regained for two minutes and then lost for good.

GROUND

ACV



CLASS A

■ Two M1126 Strykers were conducting an ambush scenario when the gunner failed to disengage the targets. The gunner continued firing his M249

ARMY AIRCRAFT LOSSES

FY02 to Present
thru 23 Jan



Hostile/
Non-hostile

AH-64A/D	9/44
U/MH-60L	7/24
C/MH-47	6/13
OH-58D	8/21

TOTAL 30/102

ARMY GROUND LOSSES

FY07
thru 31 Dec



Class A Facilities

AMV	5/6
ACV	4/3
PERSONNEL INJURY	9/10

WEAPONS HANDLING 1/0 FIRE/EXPLOSION 0/0

TOTAL 19/19

Squad Automatic Weapon as the vehicles passed, striking and fatally wounding one Soldier. The accident occurred in the late evening.

DID YOUR SOLDIERS CONDUCT REHEARSALS UNDER THE SAME CONDITIONS THEY'D EXPERIENCE DURING LIVE-FIRE ITERATIONS? IS THE RANGE SAFETY OFFICER FREE OF ALL OTHER DUTIES WHILE THE RANGE IS HOT?

■ A Soldier was operating an M2A3 BFV when the dirt road beneath it collapsed. The M2A3 rolled over into an adjacent canal and came to rest upside down in standing water. The vehicle commander and driver drowned. The accident occurred in the early morning.

AMTV



CLASS A

■ A Soldier operating an LMTV lost control while attempting to avoid road debris and obstacles on an overpass. The vehicle ran off the road and fell to the ground below. The gunner was killed, and the driver and another Soldier suffered broken legs. The accident occurred in the late evening.

■ An M1114 HMMWV that was the trail vehicle in a six-serial convoy overturned after the driver lost control. The vehicle's gunner was pinned beneath the vehicle and died within an hour of arrival at the local combat support hospital. The accident occurred in the mid-morning.

CLASS B

■ Two Soldiers were placing cement barriers at an entry control point with a Palletized Loading System when a raised barrier swung around, pinning

one Solider below the torso and the other by the left hand. Both Soldiers suffered permanent partial disabilities. The accident occurred in the mid-evening.

CLASS B (DAMAGE)

■ The driver of an M977 HEMTT lost control of the vehicle's brakes during a combat logistics patrol, causing the vehicle to run off the road and into a ravine. The driver suffered cuts in the accident, and the vehicle commander fractured his leg. The vehicle was a total loss. The accident occurred in the mid-afternoon.

CLASS C

■ A Solider suffered an arm injury while taking part in mobile down-driver drills. The Soldier was the driver-side rear passenger in an M1025 and took control of the vehicle when the driver simulated being down. The throttle was locked during the transition to stop, and the vehicle rolled over when the Soldier reached up to unlock the throttle. The accident occurred in the mid-afternoon.

CLASS C (DAMAGE)

■ A contractor driver was transporting sand in a dump

truck when a local driver lost control of his vehicle, drifted into the contractor's lane and collided head-on with the truck. The contractor was uninjured in the accident. The local driver suffered non-life-threatening injuries and was transported by a civilian vehicle to the local hospital. The accident occurred in the mid-afternoon.

Personnel Injury



CLASS B

■ A Soldier was conducting a door breach when fragmentation from the shotgun blast ricocheted and struck him in the face and right eye. The Soldier suffered a permanent partial disability. The accident occurred in the late evening.

■ A Soldier fell backward and tumbled 20 to 30 feet down a retaining wall while attempting to kick in a door during a cordon-and-search mission. The incident left the Soldier with a permanent partial disability. The accident occurred in the early morning.

POV DRIVING LOSSES

thru DEC 2006

Class A accidents/Soldiers killed

CARS	9/10
VANS	0/0
TRUCKS	10/10
MOTORCYCLES	6/6
OTHER*	3/2

*Includes tractor-trailers, unknown POVs and bicycles



28
TOTAL DEATHS

06/06: 25 3 per average: 27

HOLIDAY ACCIDENT TRENDS

Thirteen Soldiers died on the road during the Army's recent holiday exodus, which ran from Dec. 15, 2006, through Jan. 2, 2007. Two Soldiers were killed in motorcycle accidents, while the remaining 11 died in their POVs. This number represents a more than 100-percent increase in POV fatalities compared to the 2005 exodus, and the accident reports are revealing some new, disturbing trends.

Most significantly, eight of the fatal accidents involved NCOs in the grade of sergeant through sergeant first class, two of whom

Most significantly, **EIGHT** of the **FATAL ACCIDENTS** involved NCOs in the grade of **SERGEANT THROUGH SERGEANT FIRST CLASS**, two of whom **WEREN'T** wearing their **SEAT BELTS**.

weren't wearing their seat belts. Additionally, five off-duty military policemen were killed during this year's exodus. Most of the fatal accidents occurred between 5 a.m. and 5 p.m. during good

weather, factors that are normally considered low-risk conditions. Only one fatality involved fatigue, and six Soldiers were killed in full-size pickup trucks, often considered safer than most

passenger cars. The vast majority of these accidents involved a single vehicle or motorcycle, and most were attributed to a combination of excessive speed and loss of control.

Of the 13 Soldiers who died, only seven were registered ASMS-2 users, and none had completed an assessment for their trip.

DO YOUR SOLDIERS EMPLOY THE PRINCIPLES OF COMPOSITE RISK MANAGEMENT TO ALL THEIR ACTIVITIES?

■ A Soldier was diving with a friend when he began showing signs of distress. The Soldier's diving buddy surfaced to get help but could not find the Soldier when he returned to the dive area. Two divers searched for about 30 minutes and found the Soldier, who then was brought aboard a charter vessel. Attempts to revive the Soldier failed.

DRIVING

POV



CLASS A

■ A Soldier was on PCS leave with his family when his large sport utility vehicle hit a highway median curb, crossed over a guardrail and rolled over several times. The Soldier and his son

were thrown from the vehicle and suffered fatal injuries.

■ A Soldier was riding in a van being driven by his brother when they made a left turn across traffic and were struck by another vehicle on the passenger side. The van rolled over and caught fire upon impact. Bystanders were able to rescue the driver but not the Soldier, who was pronounced dead at the scene.

PASSENGERS PLAY A VITAL ROLE IN THEIR OWN SAFETY BY HELPING ALERT DRIVERS TO HAZARDS.

POM



CLASS A

■ A Soldier was operating a motorcycle with a female passenger when they struck an SUV that turned into their path. The Soldier and passenger were transported

to a local hospital, where they later died. Neither had been wearing their helmet or personal protective equipment. The Soldier was not licensed to operate a motorcycle, had not taken Motorcycle Safety Foundation training and did not inform his unit he had a motorcycle.

■ A Department of the Army civilian driving a transportation motor pool vehicle on post failed to yield right-of-way at an intersection and struck and killed a civilian contractor on a motorcycle. The rider was properly licensed, wearing all required PPE and had registered his motorcycle on post.

DRIVERS MUST BE VIGILANT WHEN ENTERING INTERSECTIONS AND WATCH FOR SMALLER VEHICLES SUCH AS MOTORCYCLES, WHICH CAN BE DIFFICULT TO SEE.

GO TIREHEAD?

- ✓ Never use radial tires on bias rims. Eight-bolt rims are to be used with bias tires only. Twelve-bolt rims can be used with either bias or radial tires.
- ✓ When using a bias tire on a radial rim, use a bias run-flat and spacer kit as listed in Maintenance Advisory Message 07-010.
- ✓ When changing from radial to bias tires, all four tires and run-flats must be changed at the same time.
- ✓ Do not mix radial and bias tires on the same vehicle.
- ✓ Replace tires when they reach their wear limit.
- ✓ Use only approved bias or radial tires in accordance with Maintenance Advisory Message 05-021.
- ✓ Remember to check the tires on your trailers, too.



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